Ethernet Remote I/O Distributed Monitoring & Control Network

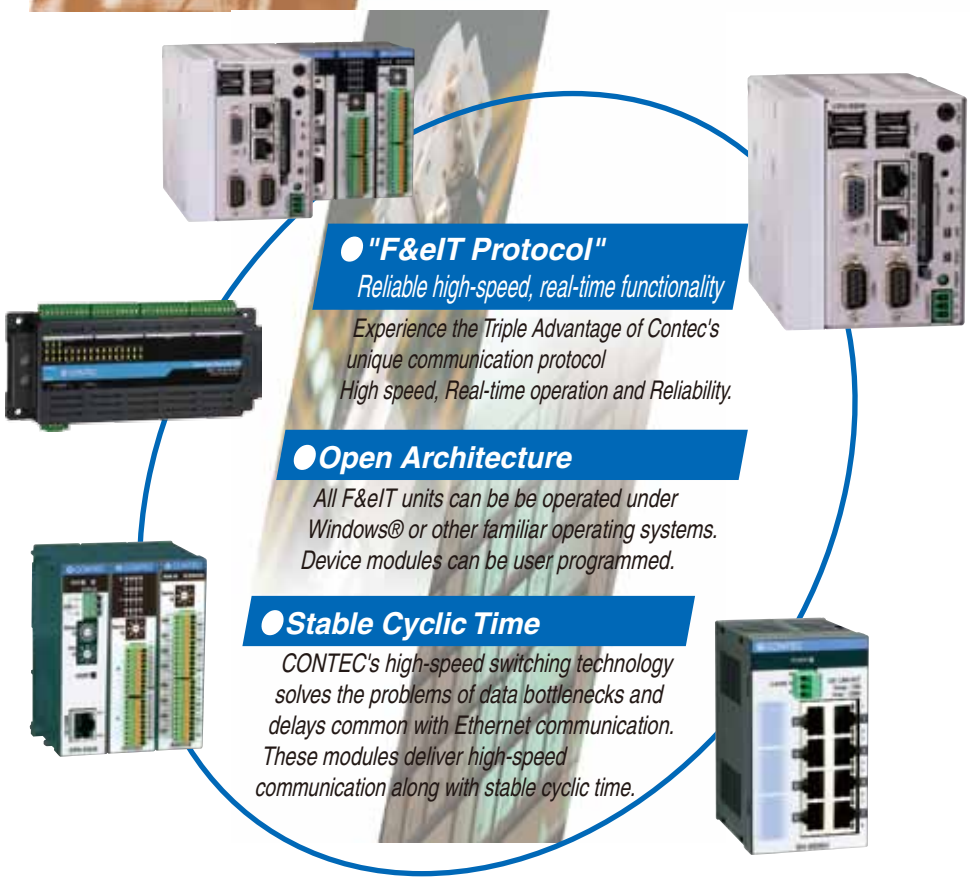
F&eIT®

F&eIT, CONTEC's premier automation solution, integrates industrial computers and instrumentation/control with network development technologies.

F&eIT provides you with an ideal automation system for all areas of industry — all the way to corporate offices.

F&eIT provides you with an ideal environment for automation

The sudden spread of the Internet has resulted in networks springing up in a wide range of fields. This, in turn, has resulted in the appearance of many information devices that make use of this infrastructure. Yet, it is a fact that interconnectivity - the greatest advantage of networks - is not being used to its fullest. CONTEC sees networks as a prime part of the system bus concept and has developed distributed monitor & control networks that organically integrate various applications from corporate offices through to field applications.



"F&eIT Protocol"

Reliable high-speed, real-time functionality

Experience the Triple Advantage of Contec's unique communication protocol
High speed, Real-time operation and Reliability.

Open Architecture

All F&eIT units can be be operated under Windows® or other familiar operating systems.
Device modules can be user programmed.

Stable Cyclic Time

CONTEC's high-speed switching technology solves the problems of data bottlenecks and delays common with Ethernet communication.
These modules deliver high-speed communication along with stable cyclic time.

For the latest information on supported hardware, visit our Web site.

http://www.contec.com/fit/

Ethernet Remote I/O

1 The simplest and Most Compact Solution for On-site Computers

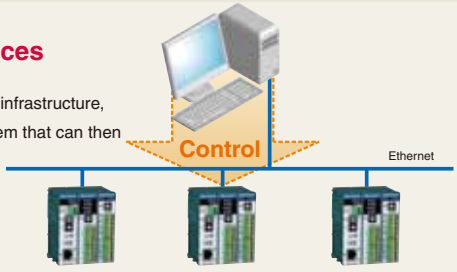
This ultra-compact [94mm(H)×64.7mm(D)] Micro Controller delivers the functions of a full size PC and runs on familiar operating systems including Windows®, Linux and DOS.

Micro Controller

Industrial PC Catalog

2 Allows Central Monitoring and Control of Remote Devices

By incorporating Ethernet and USB into the system's infrastructure, you can easily configure a lead-free Remote I/O system that can then be monitored and controlled from a central computer.



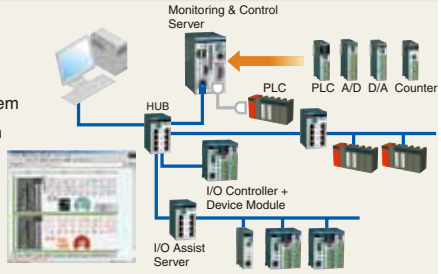
I/O Controller

USB-based Ethernet-based

G-01 H-04

3 Easily Configured Remote Monitoring & Control

You can develop a multi-function remote monitoring system that can monitor, update and log I/O information, perform task control and send alarms via e-mail.
This system can be completely developed and implemented on a web browser.

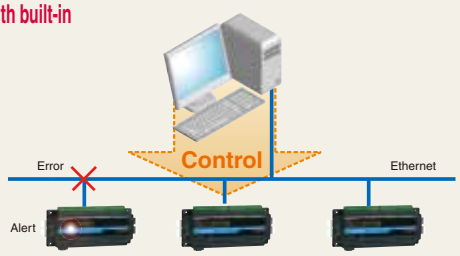


Monitor & Control Server

H-05

4 Reliable Distributed Monitoring and Control with built-in "Fail Safe" function

The F&eIT “N” Series units can remotely monitor and control equipment using existing Ethernet network. Easily installation in limited space with its compact size, and quick fixing by 35mm DIN rail,screws or magnets.An original "Fail Safe" function notifies communication error between PC and the unit to prevent unexpected malfunction.

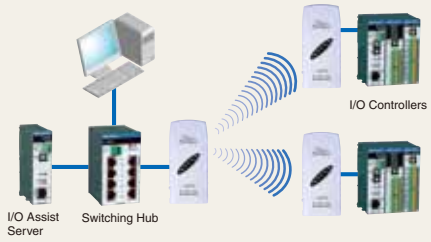


I/O Unit

H-04

5 Wireless networks deliver greater freedom

Wireless networking is now possible using IEEE802.11a/b/gcompliant micro access points. Increased potential of F&eIT is realized with the addition of mobile communications and the elimination of unwieldy wiring.

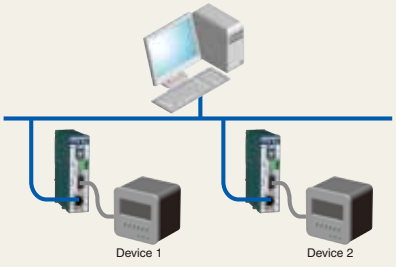


Micro Access Point

H-05

6 Ethernet integration of existing resources

By converting existing communication interfaces into ethernet (both wired and wireless) you can easily integrate the communications from existing industrial equipment and resources with those of the F&eIT device modules.



Media Converter

RS-232C/422 ⇔ Wire LAN

GPIB⇔Wire LAN

H-07 H-08

Analog I/O
Digital I/O
Serial Communication
GPIB Communication
Motion Controller
Counter
USB Remote I/O
F&eIT Ethernet IO
Bus Expansion
Accessories
Cables

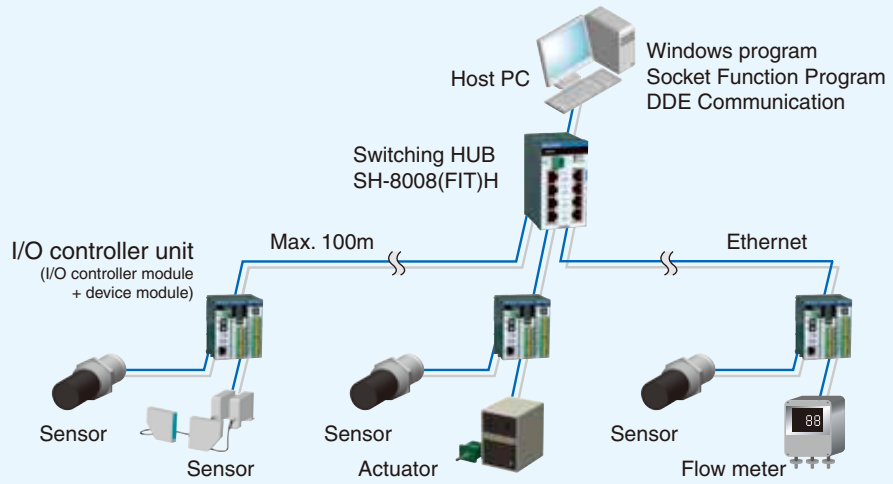
F&eIT series
Ethernet-based Remote I/O
I/O Controller
Monitoring Server
I/O Assistant Server
I/O Module
Media Converter

Ethernet Remote I/O

Ethernet-based Remote I/O

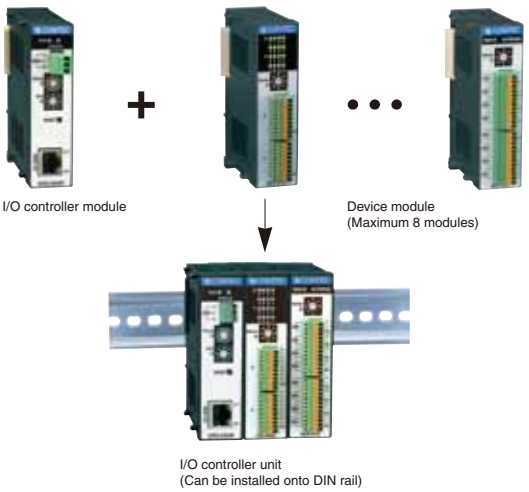
These Ethernet-based ultra-compact remote I/O systems are ideal for applications where equipment is scattered across a wide area yet monitoring and control needs to be centrally located. It is a low-cost and flexible system that utilizes existing network infrastructure and wireless LAN. Systems each device can be easily configured using the abundant I/O device modules (digital input/output, analog input/output, counter input) listed on Page H-06.

Example of Ethernet-based remote I/O system configuration



Module Configuration

The Ethernet I/O controller modules are used in combination with corresponding device modules (to a maximum of 8 modules). The combined modules are called the I/O Controller Unit.



- I/O controller module [CPU-CA20(FIT)GY, CPU-CA10(FIT)GY]
  This module receives and transmits control and monitoring information with the host PC using ethernet protocol. It also enables signal I/O processing by connecting with one of the many device modules.
  Please refer to H-04 for details.
- Device modules
  Device modules monitor and control external devices. Modules include digital input/output, analogue input/output and counter input.
  Please refer to H-06 for the modules that can be used in this configuration.
- Power supplies
  CONTEC dedicated power supplies allow for selection according to available power input and required power output.
  Please refer to H-06 for details.

Facilitates application software development

- PC control of external devices over the network is easily developed by using the driver library for Windows.
- The same easy development is available on non-Windows OS (i.e. UNIX) by using the general-purpose socket function.
- CONTEC's DDE Server [FIT-SVR(W32)] facilitates monitoring using Excel or a SCADA/HMI.

* Included with I/O controller module [CPU-CA20(FIT)GY, CPU-CA10(FIT)GY].

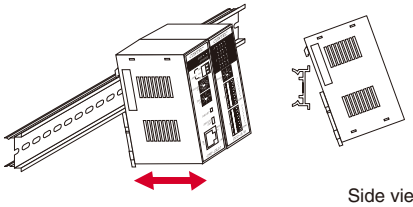
API-CAP(W32)

The API-CAP(W32) is the driver software provides commands in Windows-standard Win32API(DLL) format to Device Modules stacked and networked with the I/O controller module.Unlike the exsiting API which provides an access way in common with F&eIT series, this driver offers unique API function systems depending on each function such as digital I/O, analog I/O and counter input.

Installation on DIN rail and 'stack' connection of CONTEC's F&eIT bus

Equipped with 35mm DIN rail mount mechanism

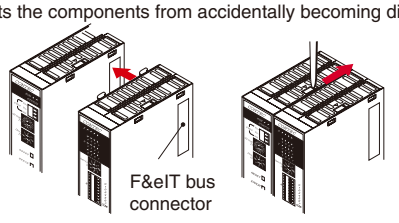
The DIN rail mounting mechanism is compliant with standard general-purpose 35mm DIN rail, allowing for easy installation. Installation and removal can be accomplished with nothing more than a straight slot screwdriver.



Side view

Stack connection of F&eIT bus eliminates need for backplane

I/O devices are added by using the 'stacking' connection on the sides of the modules. The connection is set in place by a safety lock mechanism that prevents the components from accidentally becoming disconnected.



Simple stacking system Safety lock mechanism

Ethernet Remote I/O

I/O Controller Module

F&eIT Series Ethernet Data Acquisition and Controlling Module

CPU-CA10(FIT)GY

CPU-CA20(FIT)GY

Included Software:
- Driver library for Windows (for use with all for F&eIT products)
- DDE, suiteLink server [FIT-SVR(W32)]
- Utility software for node setting and firmware updating

RoHS Compliant

Features

- Power-saving and low heat-generating CPU
- Fanless operation
- Compact design allows for flexible installation sites
- Controls stack-connected device modules including digital I/O
- When used with an I/O assist server unit and a monitor / control server unit it can serve as the controller of a subsystem of a web-enabled I/O system.
- Compliant with our multi-programmable display unit ACTIVE TOUCH, it can be used as a dedicated remote I/O device.

The difference between CPU-CA20(FIT)GY and CPU-CA10(FIT)GY

- About 3 times faster than CPU-CA10(FIT)GY
  With the introduction of SH4 240MHz CPU, the bandwidth was expanded to 100Mbs(100BASE-TX), achieving a significant increase in I/O and communication processing speed. As a result, communication response time has been reduced to one third (1.5msec to 0.5msec).*
  * These figures may vary depending on the environment.
- Significant increase in the number of units installable within the same network
  A new operation mode was added to allow maximum 128 units to be installed within the same network in individual startup mode (without I/O assist server unit).

Specifications

Item	CPU-CA10(FIT)GY	CPU-CA20(FIT)GY
CPU	SH3 60MHz	SH4 240MHz
Memory	Flash ROM: 512Kbyte (4Mbit) SDRAM: 2Mbyte (16Mbit)	Flash ROM: 4Mbyte (32Mbit) SDRAM: 32Mbyte (256Mbit)
Interface (to host)	10BASE-T (IEEE802.3)	100BASE-TX / 10BASE-T (IEEE802.3u)
Connectable device Modules	Max. 8 *1	
Power Supply	Supplied by 5VDC ± 5% 2-piece power input connector (removable) located on the front. Use of F&eIT dedicated power supply series is recommended.	
Power Consumption	0.5A (Max.) *2(Exclusive of the power consumption to device module)	0.7A (Max.)*2 (Exclusive of the power consumption to device module)
FG terminal	Power input connector is equipped with FG terminal.	
Operating Conditions	0 - 50ºC / 10 - 90%RH (no condensation)	
Dimensions (mm)	25.2(w) × 64.7(d) × 94.0(h) (1" × 2.54" × 3.7")	
Weight	100g (3.52 oz)	

*1. Total maximum power consumption by each module can not exceed the rated output current of the power supply unit.
*2. A stack connector supplies the power to each device module. Supplied power can not exceed the permissible current of a stack connector (max.3.0A). The sum of power consumption within the system can not be larger than the rated output current of the power supply unit.

Input 16 | Output 16 | Isolated | Digital Filter

Windows Driver

16ch Input / 16ch Output 12~24VDC Opto-Isolated Ethernet Digital I/O Unit

GDIO-1616LN-FIT

[DIO-1616LN-FIT]

RoHS Compliant

Model		GDIO-1616LN-FIT
Input specifications	Input channels	16 channels (8ch per common)
	Type	Opto-Isolated (for sink/source current output)
	Resistance	4.7kΩ
	Input Current (ON)	2.0mA or more
	Input Current (OFF)	0.16mA or less
	External Circuit Rating	12~24VDC (±15%), (2.5mA/12V, 5mA/24V per channel)
Output specifications	Output channels	16 channels (8ch per common)
	Type	Opto-Isolated Open Collector (Current sinking type)
	Rating	12~48VDC（±15%） Max. 150mA/ch (12~24VDC), 50mA/ch (36~48VDC)
	Response Time (Max.)	1msec
	External Circuit Rating	12～48VDC（±15%）
Power Consumption (Max.)		5VDC 0.60A, 12VDC 0.26A, 24VDC 0.14A
Wiring Distance		50m
Dimensions (mm)		188.0 (W) x 78.0 (D) x 30.5 (H) (Excluding protrusions)
Weight (main unit)		220g (Body only)
Applicable Wire		AWG28-16
Applicable Plug		AK1550/10-3.5-GREEN (PTR)

- Ethernet-based remote digital input and output
- Fail safe function notifies alert to external equipment if communication error such as cable disconnection or Ethernet switch failure occurs.
- Digital filtering function to prevent input error caused by noise and/or chattering
- 5~24VDC wide range input voltage"

Following variations are also available.
32ch Digital Input: DI-32LN-FIT
32ch Digital Output: DO-32LN-FIT
8ch Digital Input/8ch Digital Output: DIO-0808LN-FIT
16ch Digital Input: DI-16LN-FIT
16ch Digital Output: DO-16LN-FIT

As shown on the side of product's images, RoHS Compliant is a CONTEC original marking for RoHS-compliant products.

Ethernet Remote I/O

Remote monitoring and control - No programming needed

Monitoring & Control Server

Intelligent and multi-function.
All processes can be managed on a web browser.

This intelligent Server Unit is provided with multiple functions including a Web server that can remotely monitor and update I/O information as well as task scripting, logging and e-mail transmission. Simplicity of design enables development and implementation to be easily performed on a web browser.

SVR-MMF2(FIT)

* Power Supplies Optional

RoHS Compliant

Installation on DIN track

PLC Support

Please add table of following PLCs..

Mitsubishi
- MELSEC-Q series
- MELSEC-A series
- MELSEC-QnA series

Omron
- SYSMAC-CS/CJ series

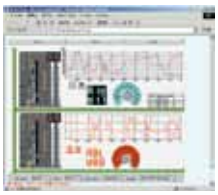
Yokogawa
- FA-M3 series

Siemens
- SIMATIC S7-300 series
- SIMATIC S7-400 series

Rockwell Automation
- Compact Logix series

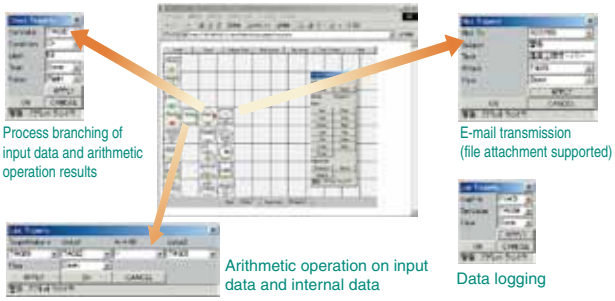
Web Monitoring

Preloaded with a Web server (Java applet) function, the SVR-MMF (FIT)GY enables monitoring and updating of I/O information from remote sites using a web browser. GUI components (such as graphs, sliders and buttons) and imported image data can be user formatted on the display. All aspects of setup, from screen configuration to linking with the I/O information can be completed using a web browser.



Web Task Script

By combining such tasks as arithmetic operation, conditional branches, data output, e-mail transmission and data logging, execution processes and tasks can be set up much like a flowchart. All steps can be completed using a Web browser.


Process branching of input data and arithmetic operation results
E-mail transmission (file attachment supported)
Arithmetic operation on input data and internal data
Data logging

The Expanding Potential of F&eIT

Wireless LAN Micro Access Point

Wireless LAN for F&eIT / Network connection with industrial systems

Access Point
FX-DS540-APDL2-U

IEEE802.11b/g
IEEE802.11a
J52 W52 W53

- Devices with a built-in (wired) Ethernet communication port can be converted to wireless irregardless of OS or protocol.
- The unit can be used as an access point for small-scale wireless LAN systems.
- A UTP cable power supply (sold separately) is available.

*Indicated figures are logical maximum values according to wireless LAN standards, and do not indicate the actual data transmission speeds.

RoHS Compliant

AC Adapter included

■Other F&eIT series

Model	Description	
SVR-MMF2(FIT)	Server Unit for Monitor and Control	CE
SVR-SEC(FIT)GY	Security Server Unit	CE
SH-8008(FIT)H	10M/100M Auto-Recognition Switching HUB	CE

Management of I/O Controller Unit

These server units control the I/O information that is received from a maximum 8 units of I/O controller units and then provides data to the host in a single transfer thus helping to alleviate the line load.

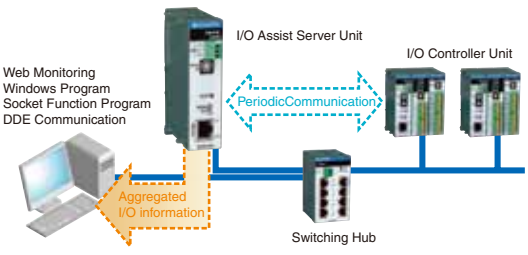
I/O assist server unit
High-speed/high-performance model
SVR-IOA2(FIT)GY

CE

RoHS Compliant

Advantages of the SVR-IOA2(FIT)GY over the SVR-IOA(FIT)GY

- The processing speed is almost doubled
  By using the H4 240MHz CPU, I/O and communication processing speed has improved significantly.
- Web monitoring function makes it easier to operate the network
  CONTEC's web monitoring page function has been made easier to remotely view and operate



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Device Modules Compatability Table

Max 8 modules

(Total power consumption 3 A or less)

A maximum of eight modules can be stacked on one unit.
However, the power consumption of the configuration of connected device modules cannot exceed a total of 3 Amps.

Function	Model	Power Consumption	Micro Controllers: CPU-SB304-FIT-400 CPU-SB304-FIT-456 CPU-SB304-FIT-45F	I/O Controllers: CPU-CA20(FIT)GY CPU-CA10(FIT)GY	I/O Controllers: CPU-CA10(USB)GY	Monitoring & Control Servers: SVR-MMF2(FIT)	I/O Assist Servers: SVR-IOA2(FIT)GY SVR-IOA(FIT)GY
Isolated Digital I/O							
12 to 24 VDC 16 Inputs/12 to 48 VDC 16 Outputs	GDIO-16/16(FIT)GY [DIO-16/16(FIT)GY]	0.15A	○	○	○	○	Device modules cannot be stacked.
12 to 24 VDC 8 Inputs/Outputs	GDIO-8/8(FIT)GY [DIO-8/8(FIT)GY]	0.15A	○	○	○	○	
36 to 48 VDC 8 Inputs/Outputs	DIO-8/8H(FIT)GY	0.15A	○	○	–	○	
12 to 24 VDC 4 Inputs/12 to 48 VDC 4 Outputs	DIO-4/4(FIT)GY	0.15A	○	○	–	○	
Non-isolated Digital I/O							
TTL (5 VDC) 8 Inputs/Outputs	DIO-8D(FIT)GY	0.15A	○	○	–	○	
Isolated Digital Input							
12 to 24 VDC 32 Inputs	GDI-32(FIT)GY [DI-32(FIT)GY]	0.15A	○	○	○	○	
12 to 24 VDC 16 Inputs	GDI-16(FIT)GY [DI-16(FIT)GY]	0.15A	○	○	○	○	
36 to 48 VDC 16 Inputs	DI-16H(FIT)GY	0.15A	○	○	–	○	
12 to 24 VDC 8 Inputs	DI-8(FIT)GY	0.15A	○	○	–	○	
Isolated Digital Output							
12 to 48 VDC 32 Outputs	GDO-32(FIT)GY [DO-32(FIT)GY]	0.15A	○	○	○	○	
12 to 48 VDC 16 Outputs	GDO-16(FIT)GY [DO-16(FIT)GY]	0.15A	○	○	○	○	
12 to 48 VDC 8 Outputs	DO-8(FIT)GY	0.15A	○	○	–	○	
Isolated Analog Input							
Isolated analog input, 12 bits, 8 channels	ADI12-8(FIT)GY *4	0.35A	○	○	○	○	
Isolated analog input, 16 bits, 4 channels	GADI16-4(FIT)GY [ADI16-4(FIT)GY]	0.30A	○	○	○	○	
Isolated Analog Output							
Isolated analog output, 12 bits, 4 channels	DAI12-4(FIT)GY	0.40A	○	○	○	○	
Isolated analog output, 16 bits, 4 channels	GDAI16-4(FIT)GY [DAI16-4(FIT)GY]	0.50A	○	○	○	○	
Pt100 Temperature Sensor Input							
Pt100 temperature input, 4 channels	GPTI-4(FIT)GY [PTI-4(FIT)GY]	0.50A	○	○	○	○	
Isolated Counter							
24-bit up/down, 5 to 12 VDC, 2 channels	CNT24-2(FIT)GY	0.15A	○	○	○	○	
16-bit up, 12 to 24 VDC, 8 channels	CNT16-8(FIT)GY	0.15A	○	○	–	○	
16-bit up, 5 VDC, 8 channels	CNT16-8L(FIT)GY	0.15A	○	○	–	○	
Reed Relay Contact Output							
125 VAC/30 VDC 2 A, 4 lead relay contact outputs	RRY-4(FIT)GY	0.15A	○	○	–	○	
Serial Communication							
RS-232C 2-channel	GCOM-2(FIT)GY [COM-2(FIT)GY]	0.10A	○ *1	–	–	○ *2	
RS-422/485 1-channel	GCOM-1PD(FIT)GY [COM-1PD(FIT)GY]	0.30A	○ *1	–	–	○ *2	
GPIB Communication							
GPIB (IEEE-488) 1-channel	GGP-IB(FIT)GY [GP-IB(FIT)GY]	0.23A	○ *3	–	–	–	

*1:One module can be connected in the Compatible mode, and up to three modules can be connected in the Enhanced mode.
*2:Only one module can be connected.
*3:Up to three modules can be connected.
*4:Optional Low-pass filter ATLF-8(FIT)GY is available.

Power Supplies

AC-DC Type

Model	Supply Current (5VDC)	Input Voltage
POW-AD13GY	3.0A	85~132VAC
POW-AD22GY	2.0A	85~264VAC

DC-DC Type

Model	Supply Current (5VDC)	Input Voltage
POW-DD10GY	3.0A	10~30VDC
POW-DD43GY	3.0A	30~50VDC

AC Adapter

Model	Supply Current (5VDC)	Input Voltage
POA201-10	12VDC 1.0A	90~264VAC
POA200-20	5VDC 2.0A	90~264VAC

PoE power supply unit for RP-COM(FIT)H-AF

Model	Supply Current (5VDC)	Input Voltage
POW-CB30(af)	48VDC 0.5A	100~240VAC
POW-CBM4(af)	48VDC 1.8A	100~115VAC

Ethernet Remote I/O

Media Converter

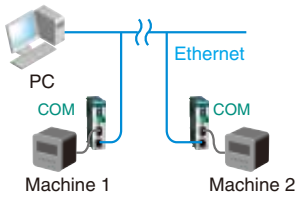
●RS-232 / RS-422A serial communication protocol is converted to Ethernet

●Choice of three operation modes to suit your specific needs

●Add a COM port on your PC - [Virtual COM Mode]

In this mode, the unit is used as a COM port in a Windows® PC.
Via Ethernet, you can operate a remote device as if it were right next to you. Access by socket communication is also supported.

■Add a COM port on your PC

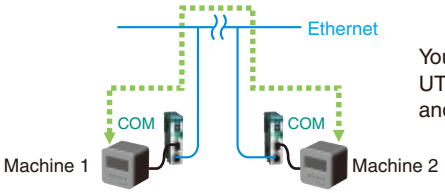


You can use up to 100m UTP cable between PC and HUB, or HUB and this converter.

●Replace a Serial Cable Connection - [Transparent Mode]

In this mode, data from connected devices is transferred as is, without any changes.
You can replace serial cables with Ethernet without changing communication software settings.
Up to 254 units can be installed on the same line.

■Replace a Serial Cable



You can use up to 100m UTP cable between HUB and this converter.

●N-to-N Packet Communication Using Dedicated Commands - [Modem Mode]

This mode is used for creating communication programs and conducting packet communications using dedicated commands.
You can conduct communications to multiple units (N-to-N) by appending packets with the device ID. 254 units can be installed on the same line.

RS-232C Media Converter

RS-232C⇔Ethernet (Wire LAN)

●Add-on device modules COM-2(FIT)GY (for RS-232C 2ch) and COM-1PD(FIT)GY (for RS-422A/RS-485 1ch) can be freely combined to allow up to three units to be added for extension
●DHCP client function

GRP-COM(FIT)H
[RP-COM(FIT)H]

●Corresponding to the wide input power supply (10 - 30VDC)

GRP-COM(FIT)H-AF
[RP-COM(FIT)H-AF]

●5VDC and PoE supporting the use of IEEE802.3af-compatible devices, enabling power to be supplied from UTP cables

RP-COM(FIT)

Windows Diver | AC Adapter

RS-422A Media Converter

RS-422A⇔Ethernet (Wire LAN)
RP-422(FIT)GY

Windows Diver | AC Adapter

As shown on the side of product's images, RoHS Compliant is a CONTEC original marking for RoHS-compliant products.

Ethernet Remote I/O

Model	RP-COM(FIT)H	RP-COM(FIT)H-AF	RP-422(FIT)GY	
Serial standard				
Interface type	RS-232C		RS-422A	
Data Speed	300~921,600bps			
Connector	9-pin male D-type connector			
Wire LAN				
Ethernet Standard	IEEE802.3(10BASE-T)/ IEEE802.3u(100BASE-TX)	IEEE802.3(10BASE-T)/ IEEE802.3u(100BASE-TX)/ IEEE802.3af (PoE)	IEEE802.3(10BASE-T)/ IEEE802.3u(100BASE-TX)	
Data Speed	10/100Mbps			
Access Method	CSMA/CD			
Transmission Format	Half Duplex / Full Duplex			
Number of ports	1 (10BASE-T / 100BASE-TX)			
Power Supply	10.0 - 30.0VDC ±5% (AC adapter is purchased separate)	5VDC±5% (AC adapter is purchased separate)	5VDC±5% (AC adapter included)	
Power Consumption (Max.)	12.0VDC 0.2A, 24.0VDC 0.1A	0.4A (Max.)	0.5A (Max.)	
Add-on module	RS-232C 2ch add-on : COM-2(FIT)GY For RS-422A/485 1ch add-on : COM-1PD(FIT)GY Combine COM-2(FIT)GY or COM-1PD(FIT)GY up to three freely		-	
Dimensions (mm)	25.2(W)×64.7(D)¡Á94.0(H) (Exclusive of protrusions)			
Weight	100g (3.5oz)			

■Options

RP-COM(FIT)H / RP-COM(FIT)H-AF	
Add-on device modules	
COM-2(FIT)GY	RS-232C 2ch
COM-1PD(FIT)GY	RS-422A/RS-485 1ch
AC adapter	
POA201-10	Output: 12V 1A <RP-COM(FIT)H>
POA200-20	Output: 5V 2A <RP-COM(FIT)H-AF>

RP-COM(FIT)H-AF	
PoE power supply unit	
POW-CB30(af)	Supplying power Unit from UTP cables support PoE
POW-CBM4(af)	Multi Port Supplying power Unit whith swithing HUB support PoE

Media Converter

GPIB Communication Media Converter

GPIB⇔Ethernet (Wire LAN)
RP-GPIB(FIT)GY

AC Adapter

- **Provides protocol conversion from GPIB (IEEE-488.1/IEEE-488.2) communication to Ethernet.**
- **With the included drivers installed on a Windows environment PC, devices can be remotely controlled as easy as if they were local.**
- **Supported operating systems: Windows XP, 2000, Me, 98SE, 98**

■Options

GPIB		
	Standard	IEEE-488.1, IEEE-488.2
	Mode	Master mode only
	Number of Channels	1
	Speed (Max.)	Transmission: 18Kbyte/sec Reception: 10Kbyte/sec
	Data type	8 parallel lines, 3 handshake lines
	Signal Logic	Negative Logic: <Low Level> 0.8V or less, <High level> 2.0V or more
Wire LAN		
	Ethernet Standard	IEEE802.3
	Data Speed	10Mbps
	Access Method	CSMA/CD
	Transmission Format	Half Duplex / Full Duplex
	Available Ports	1 (10BASE-T)
Power Supply		5VDC±5% (using attached AC Adapter)
Power Consumption (Max.)		0.6A
Dimensions (mm)		50.4(W)×64.7(D)×94.0(H) (Exclusive of protrusions)
Weight		190g

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